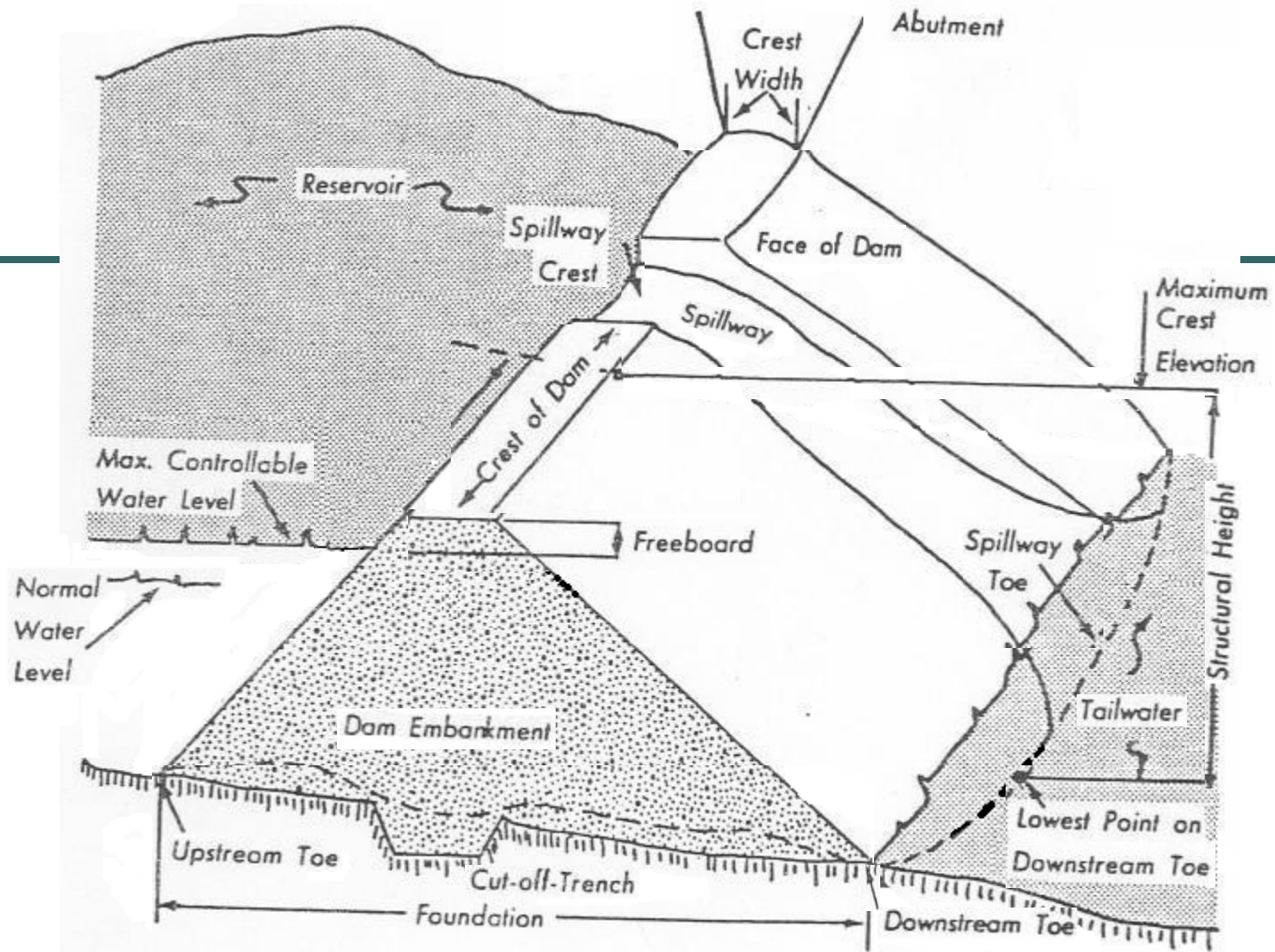
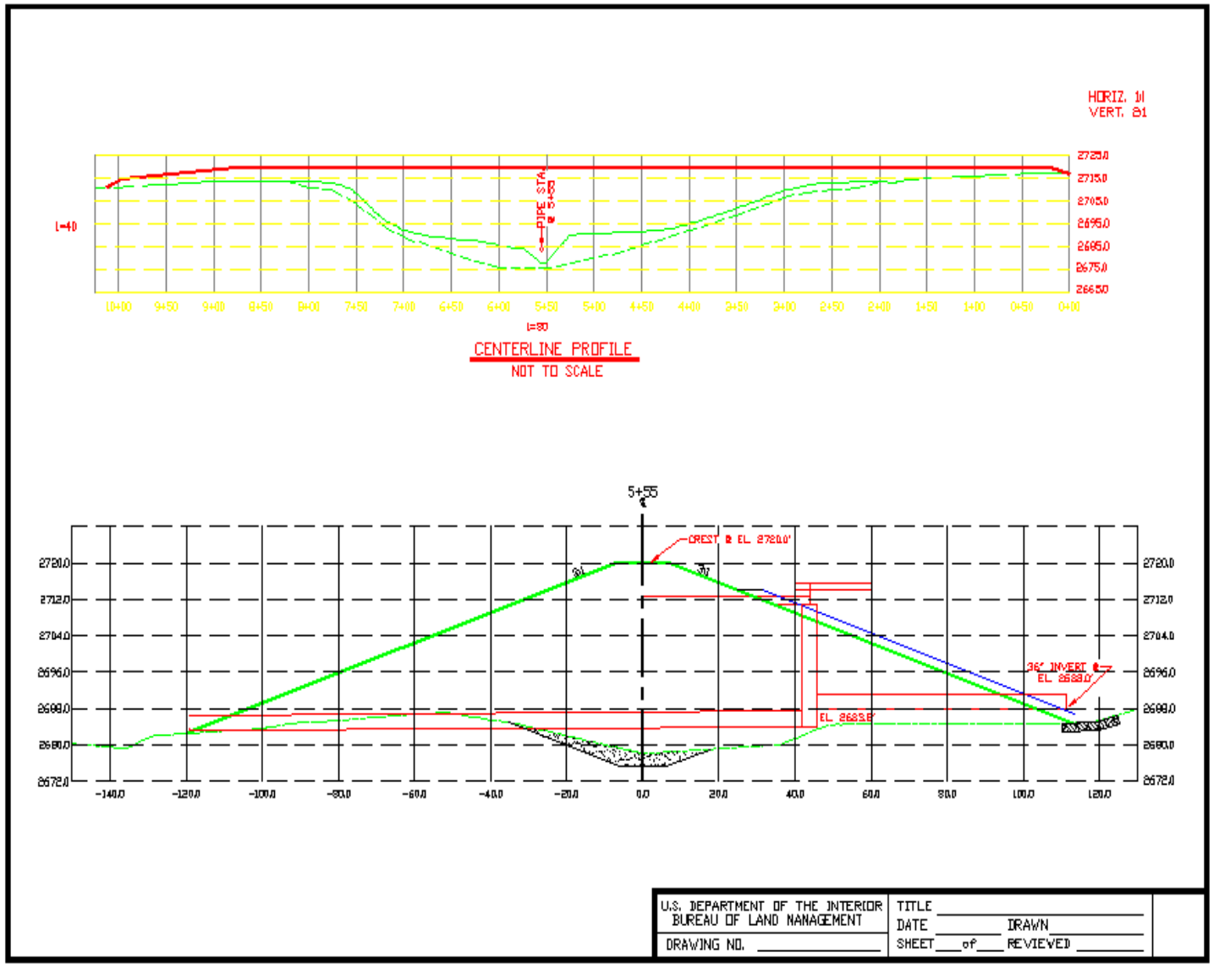


Dam Design Old vs. New

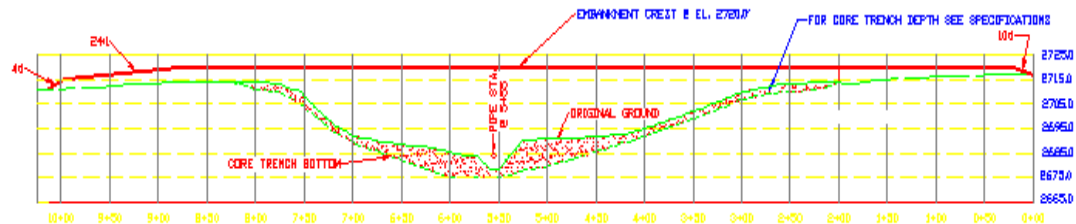


Homogeneous Earth Retention Dam

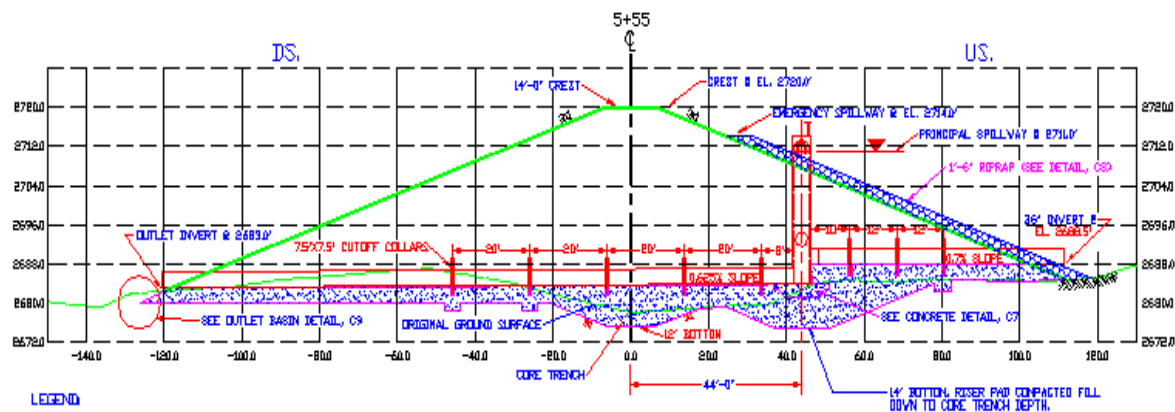
Old Construction Methods



PROPOSED 4-5-96



CENTERLINE PROFILE



LEGEND



- AREA TO BE OVERDIGGATED AND COMPACTED BELOW STRUCTURE WITH MINIMUM WIDTH 12 FT. AND MAXIMUM SLOPE 3:1. AREA AROUND CUTOFF COLLARS REQUIRED 8 FT. FROM EDGES OF COLLAR.

NOTE

1. SEE WORK DATA SHEET FOR PIPE LENGTHS.

CROSS SECTION AT PIPE STATION 5+55

DRAWING NOT TO SCALE

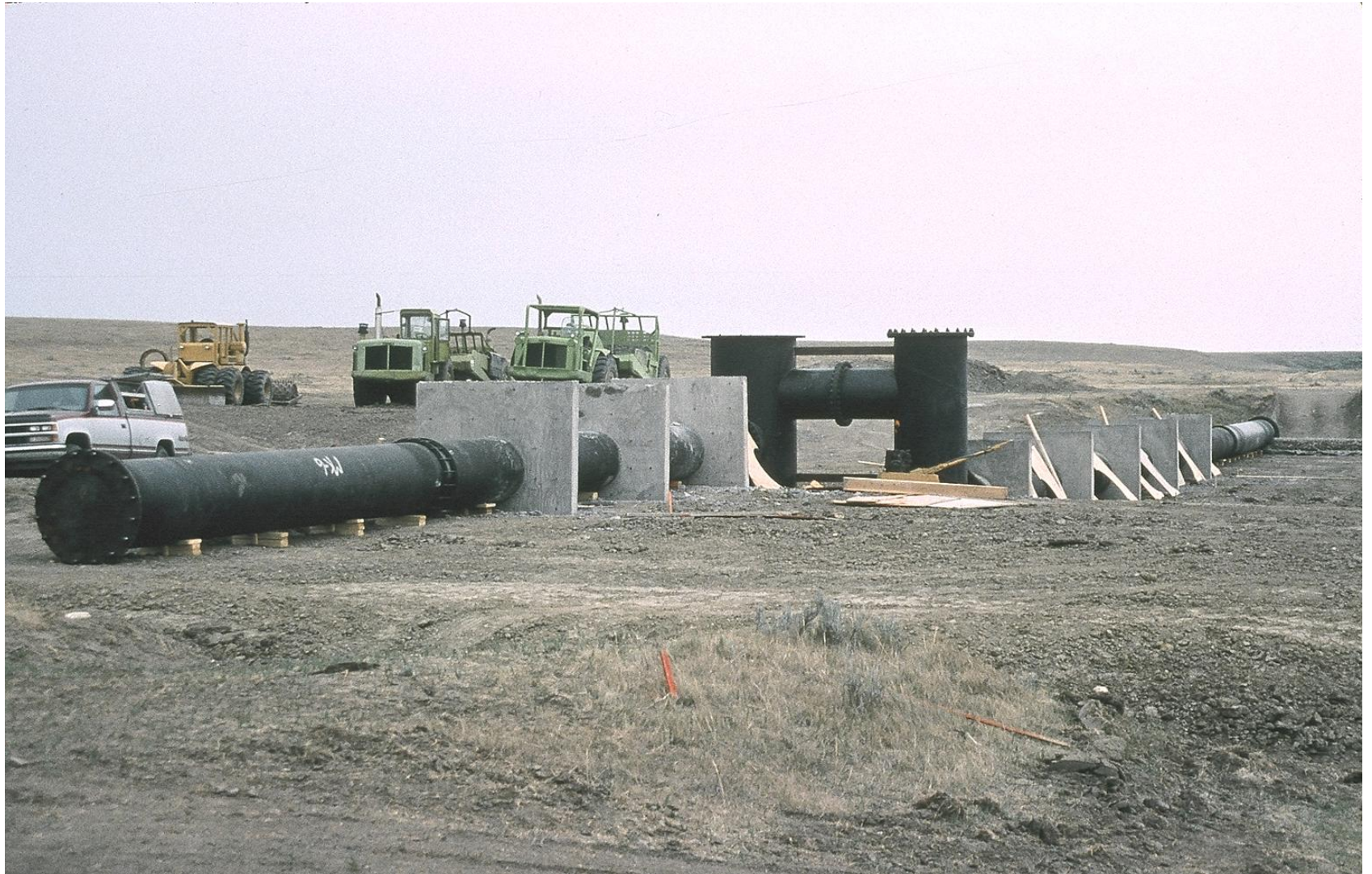
ALWAYS THINK SAFETY

C3

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
DRAWING NO. NONE
DESIGNED _____ REVIEWED _____

TITLE ANITA RES. PROFILE AND X-SEC.
DATE 4-5-96
SHEET 1 of 1
DRAWN HAC
APPROVED _____



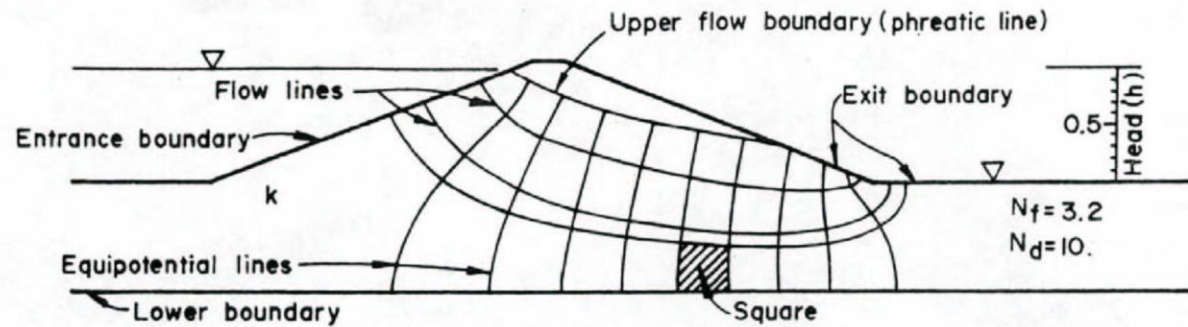








New Construction Methods

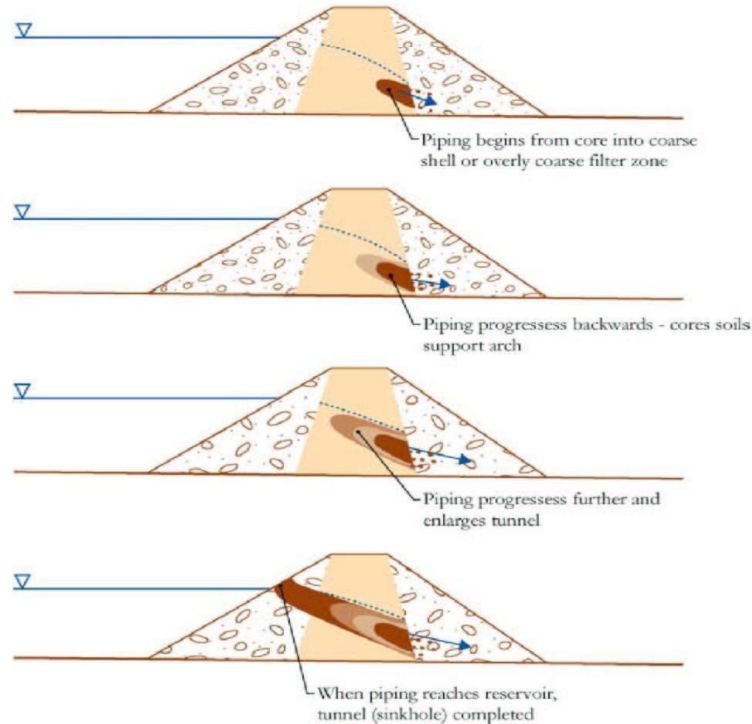


(a) Nomenclature

1. Flow and equipotential lines intersect at right angles and are chosen to form curvilinear squares.
2. Flow quantity between all pairs of adjacent flow lines (in all flow channels) is the same.
3. Energy loss between all pairs of equipotential lines is the same.
4. Velocity and hydraulic gradient are a function of the spacing between flow and equipotential lines.
5. Lines within the net are smooth curves.
6. Squares at a discharge face exposed to the atmosphere may be incomplete.
7. Equipotential lines intersect the phreatic line at equal increments of elevation.

(b) Properties

Factors That Cause Piping

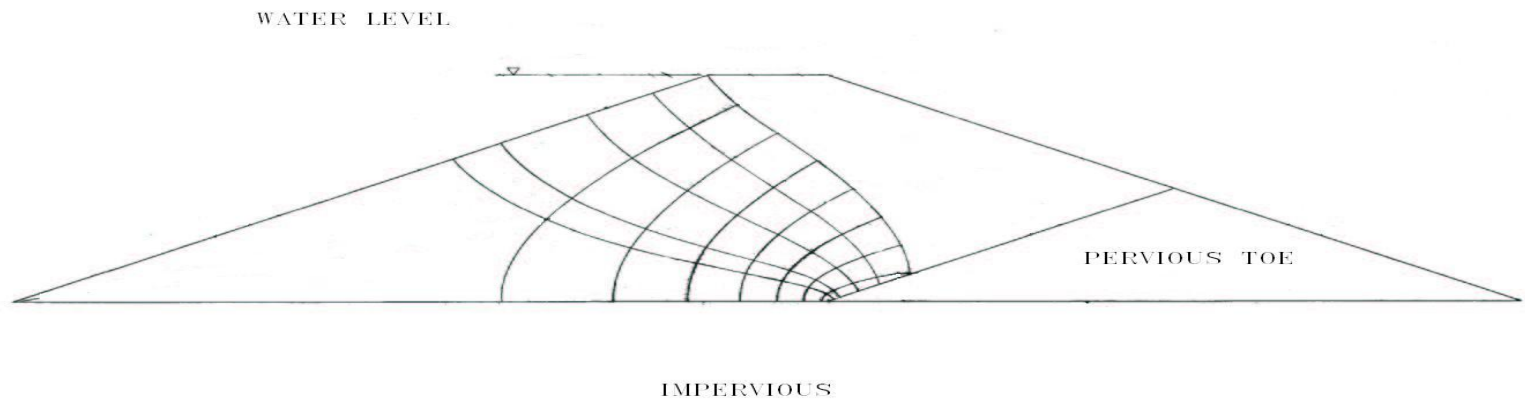


Piping scenario VI - Piping of core zone into coarse downstream shell or overly coarse filter zone

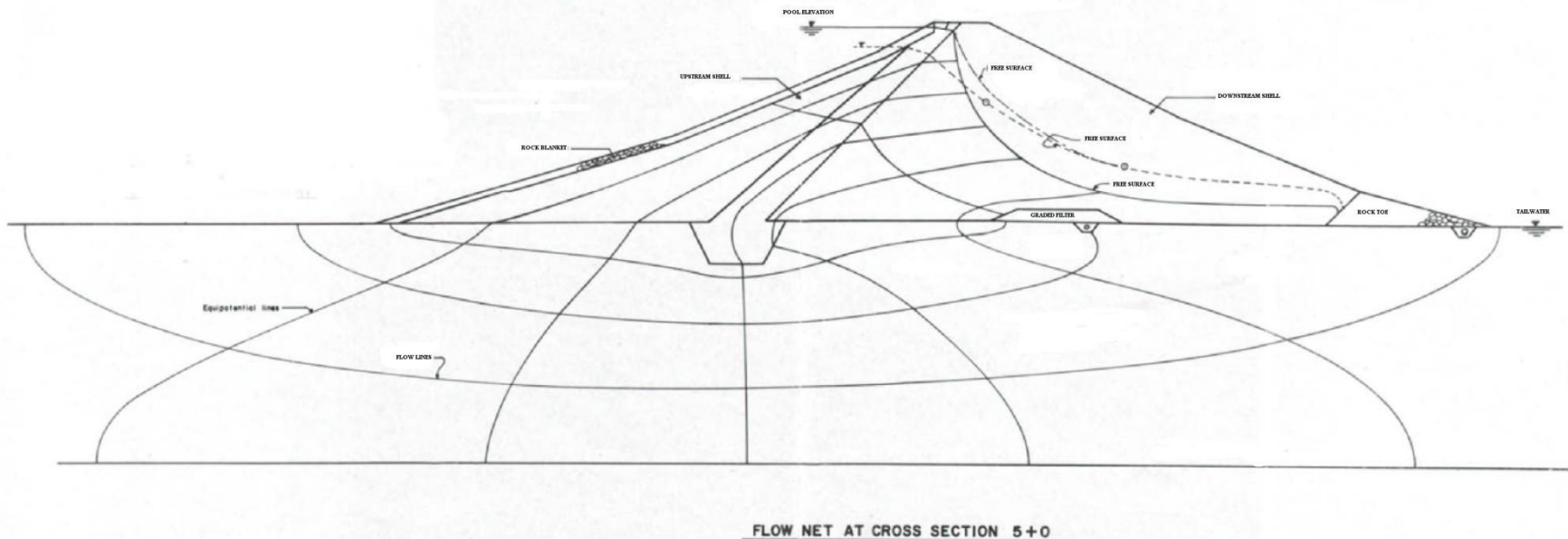
No Filter Between Core & Coarse Shell

- Migration of fines into shell zone
- Progressive tunnel erosion
- Eventual piping failure

EMBANKMENT WITH PERVIOUS TOE DRAIN



MULTI ZONED EMBANKMENT WITH TOE DRAIN



- In the Slot test, water under high pressure passes through the simulated crack & the filter
- Eroded particles of the base soil collect at the filter face and stop flow in the crack

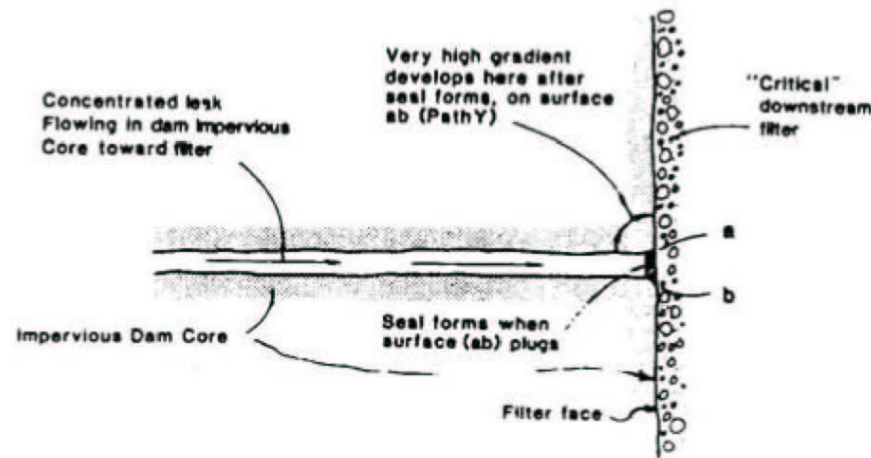
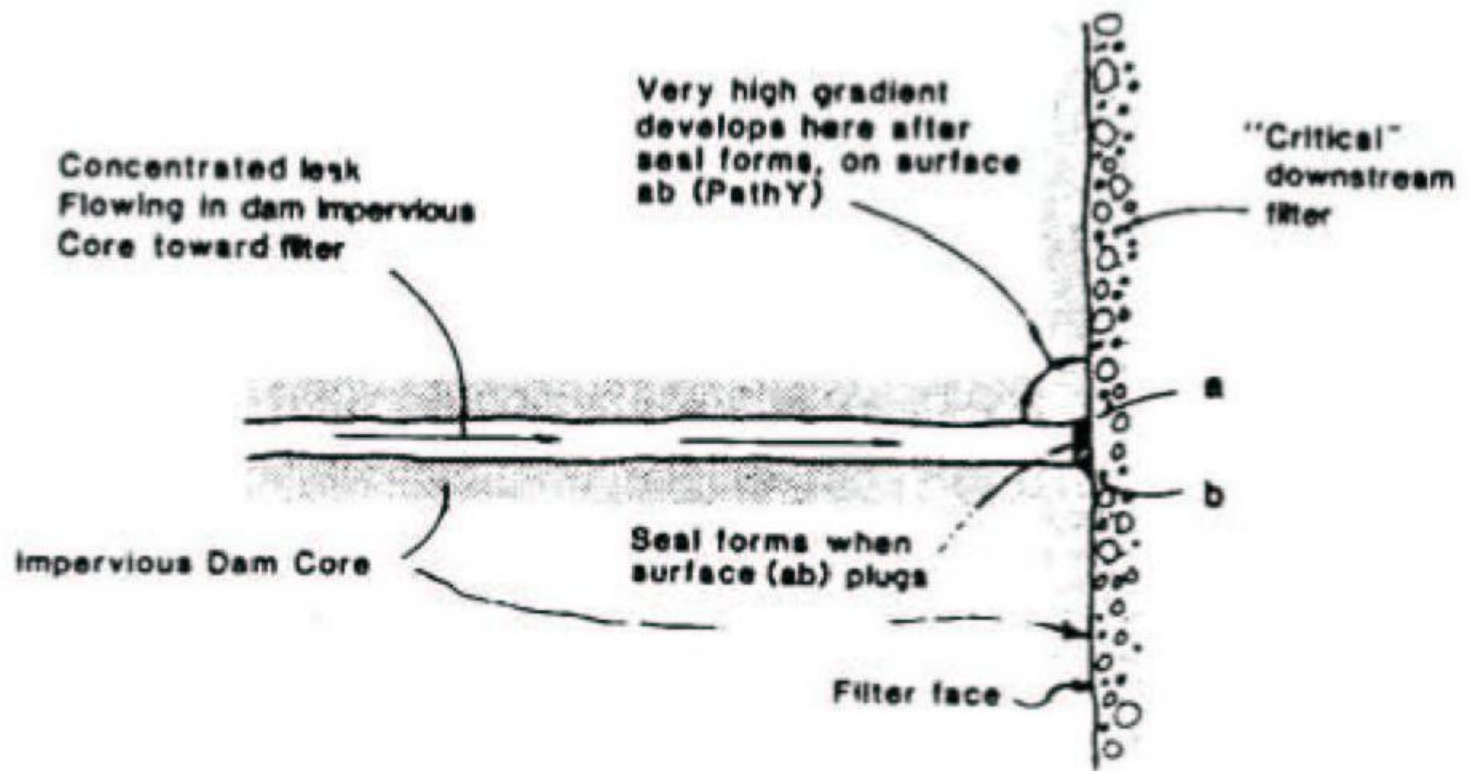
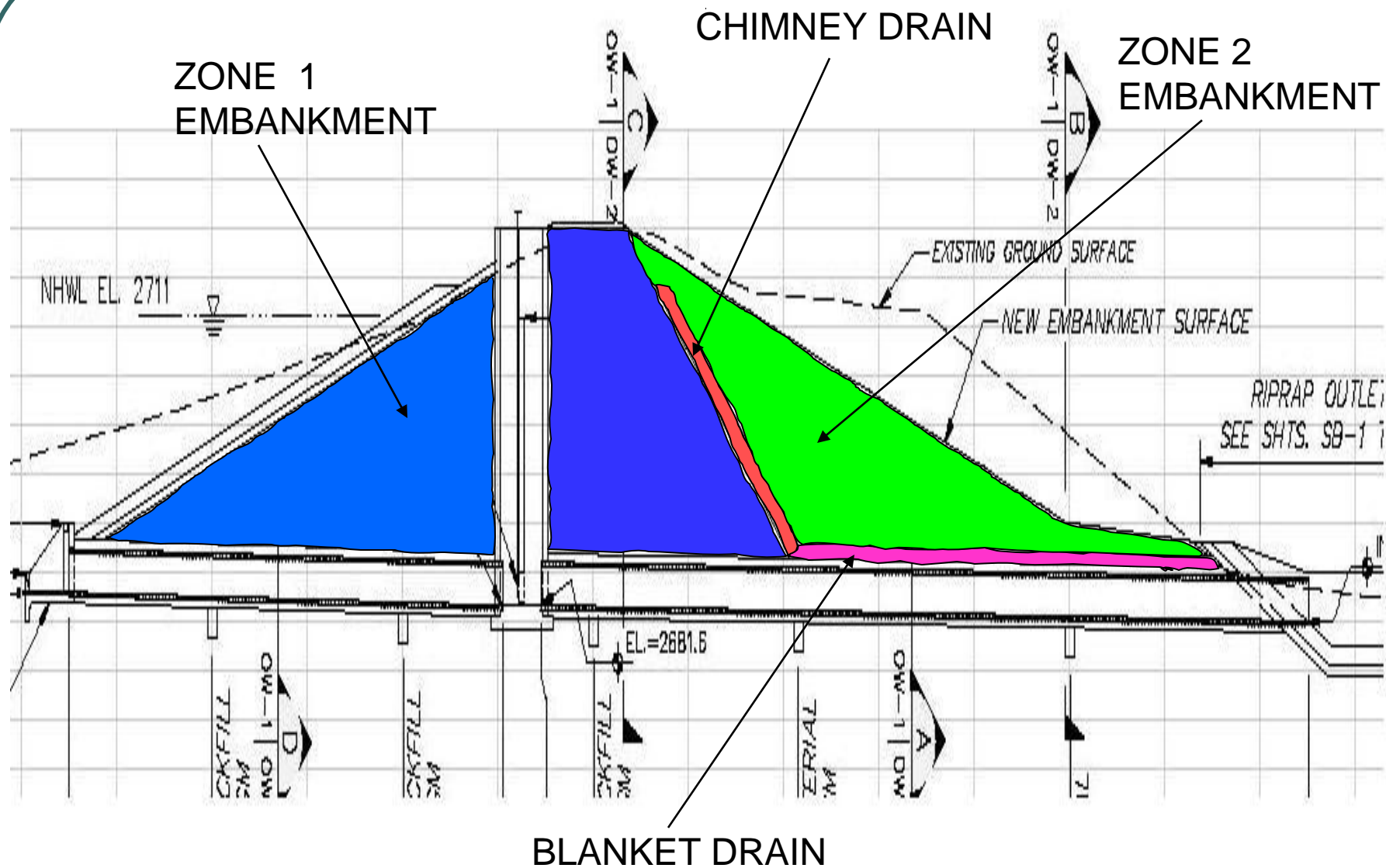
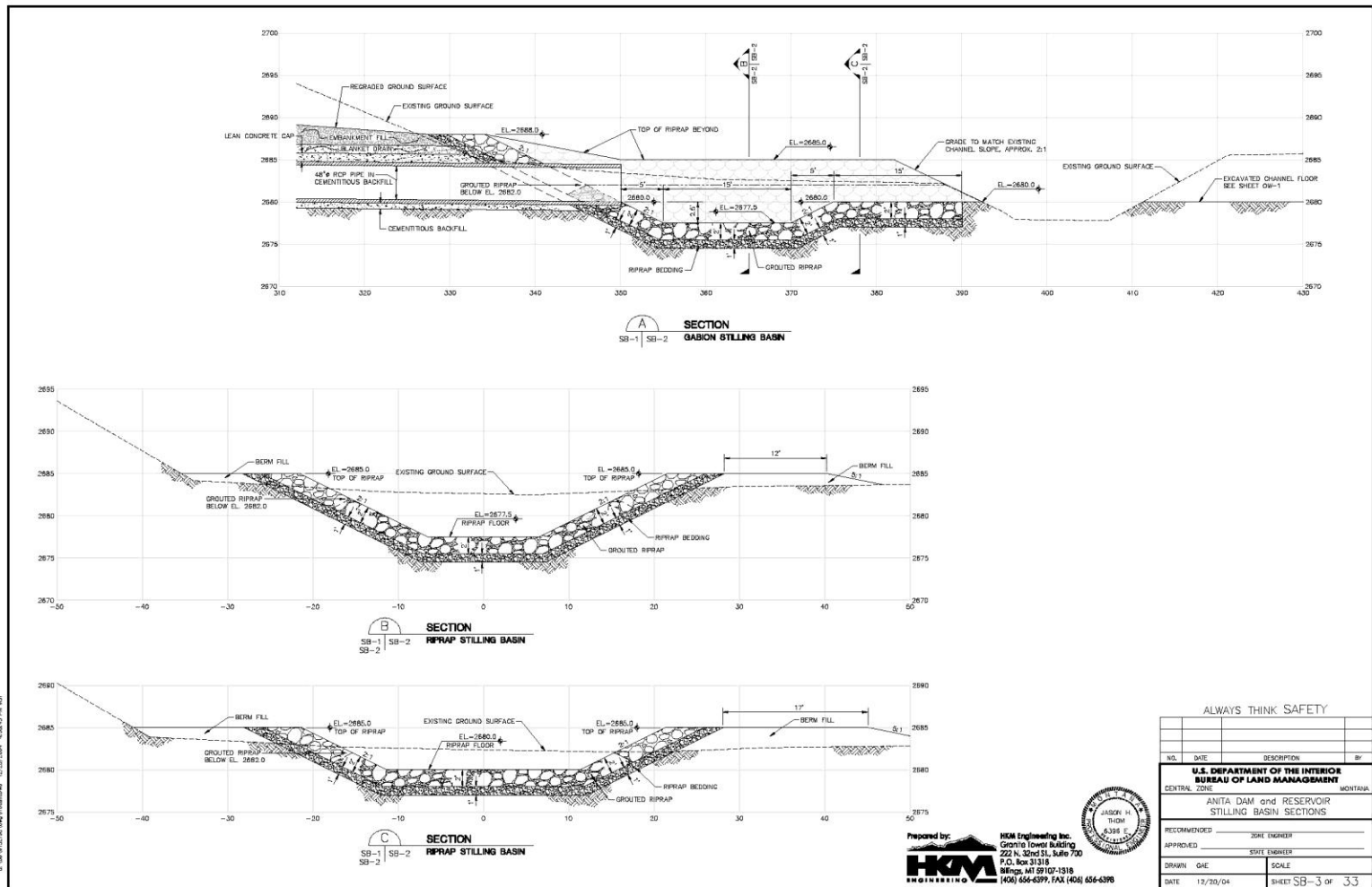


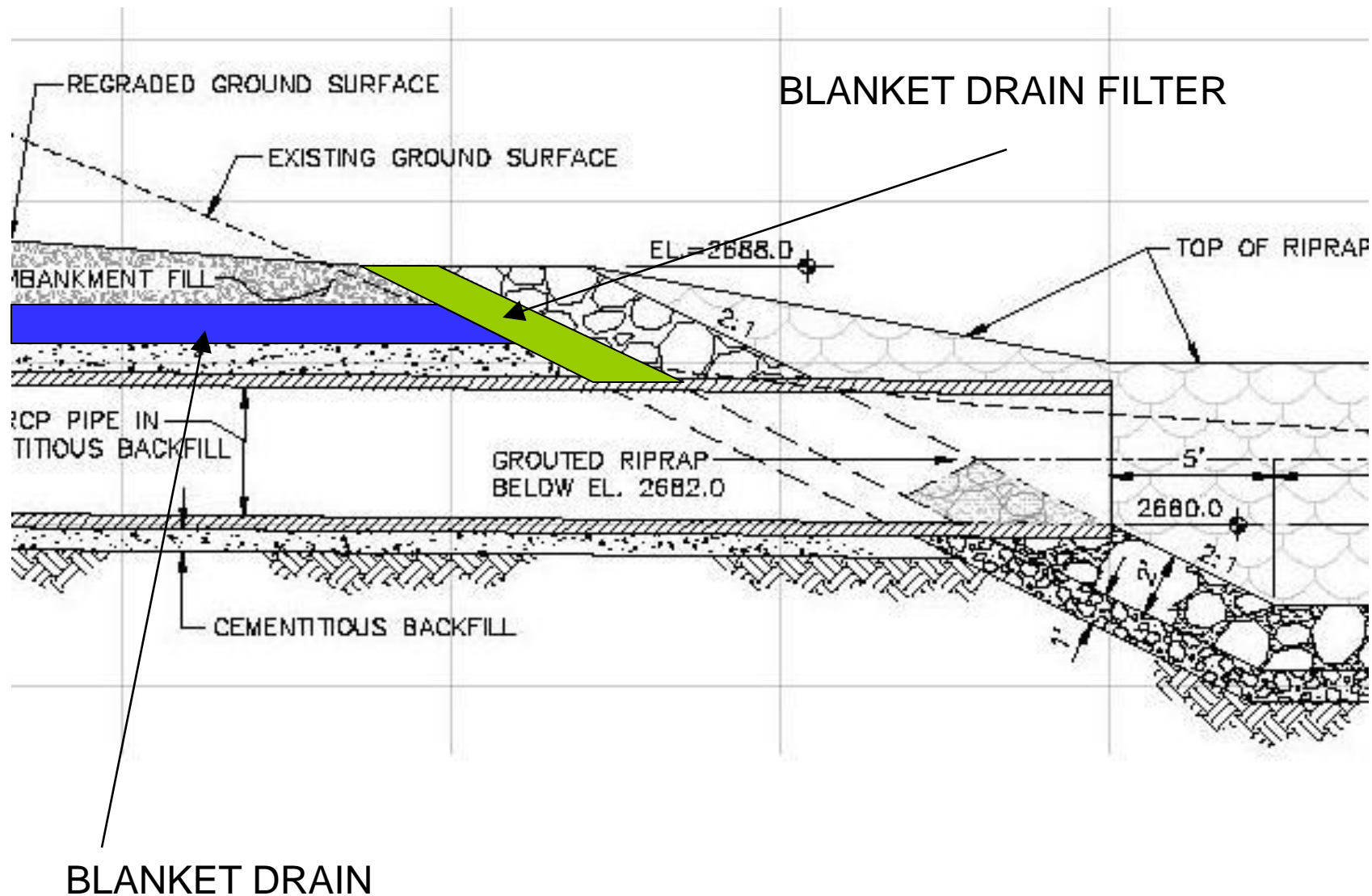
FIG. 1.—Sketch Showing Concentrated Leak Through Dam Core Discharging Into Downstream Filter (No Scale)











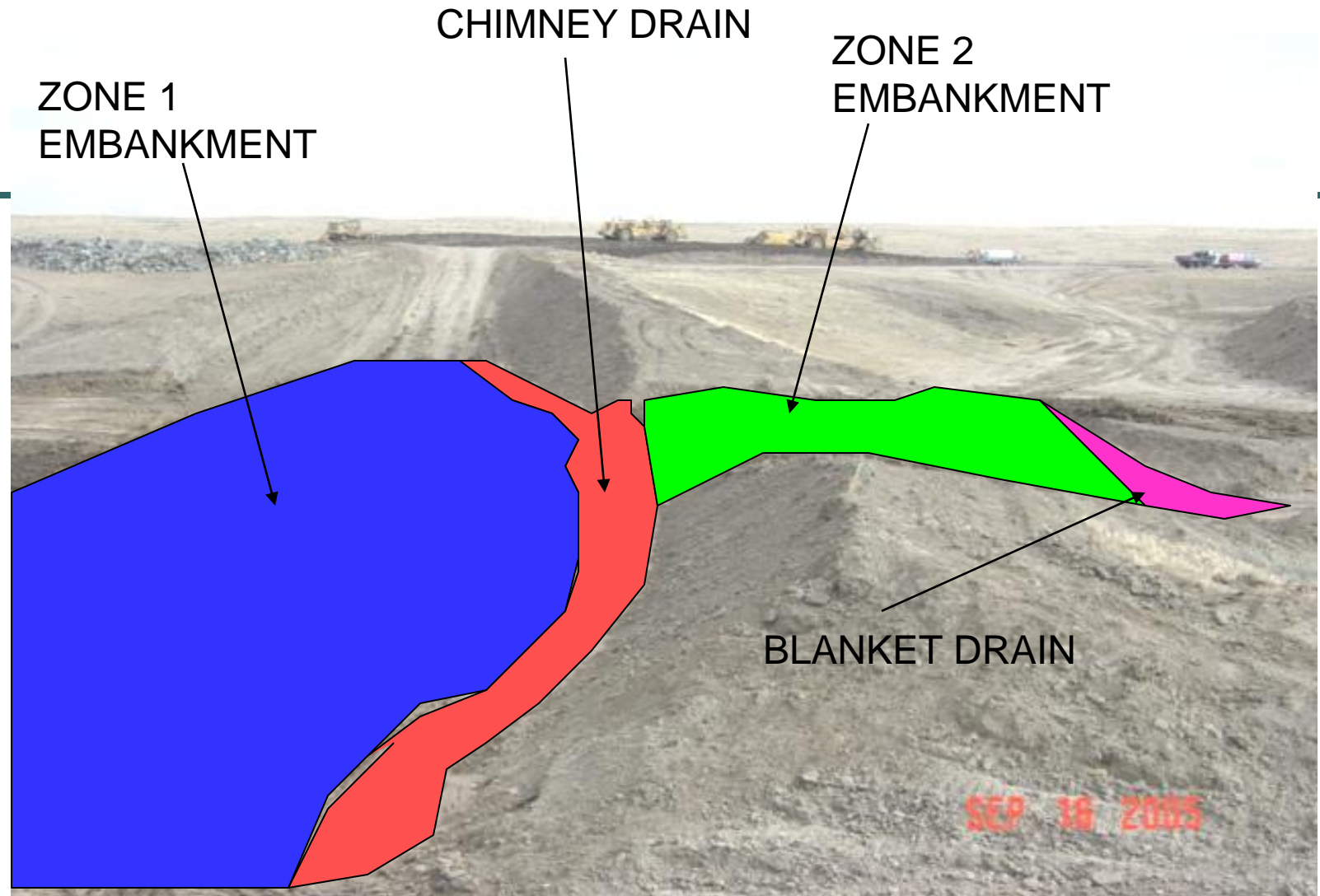






















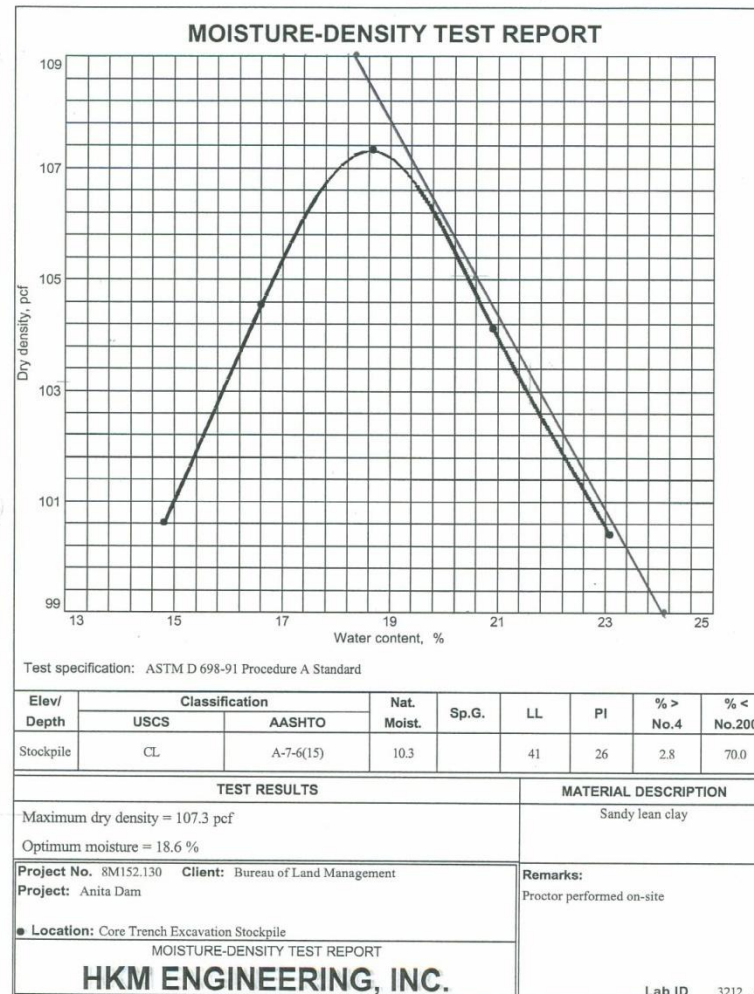


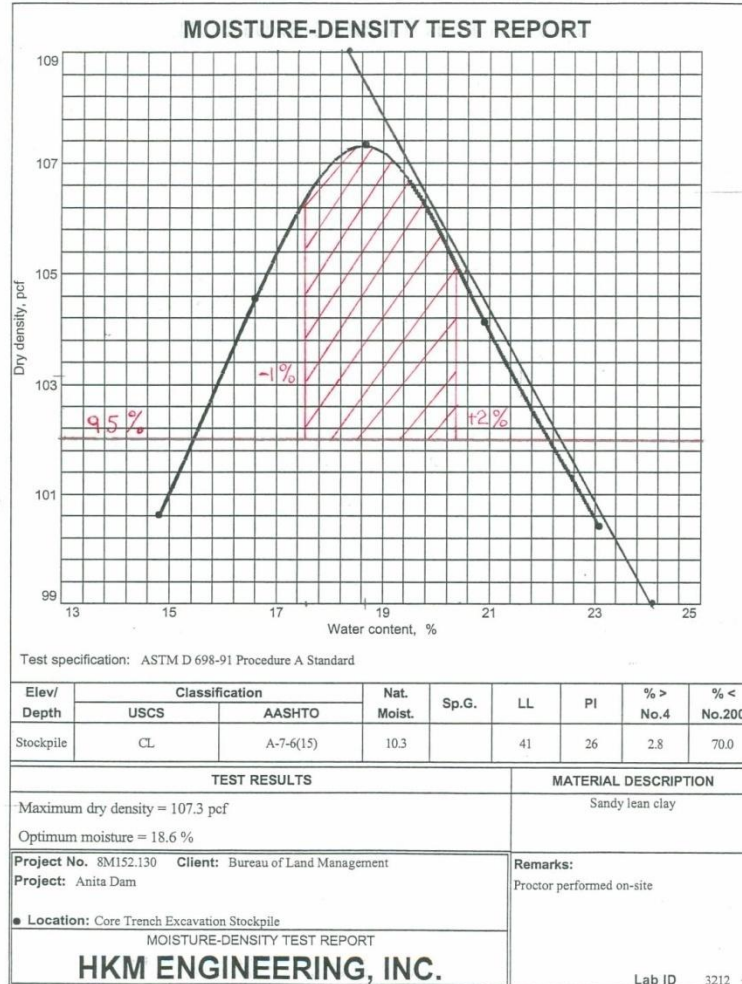


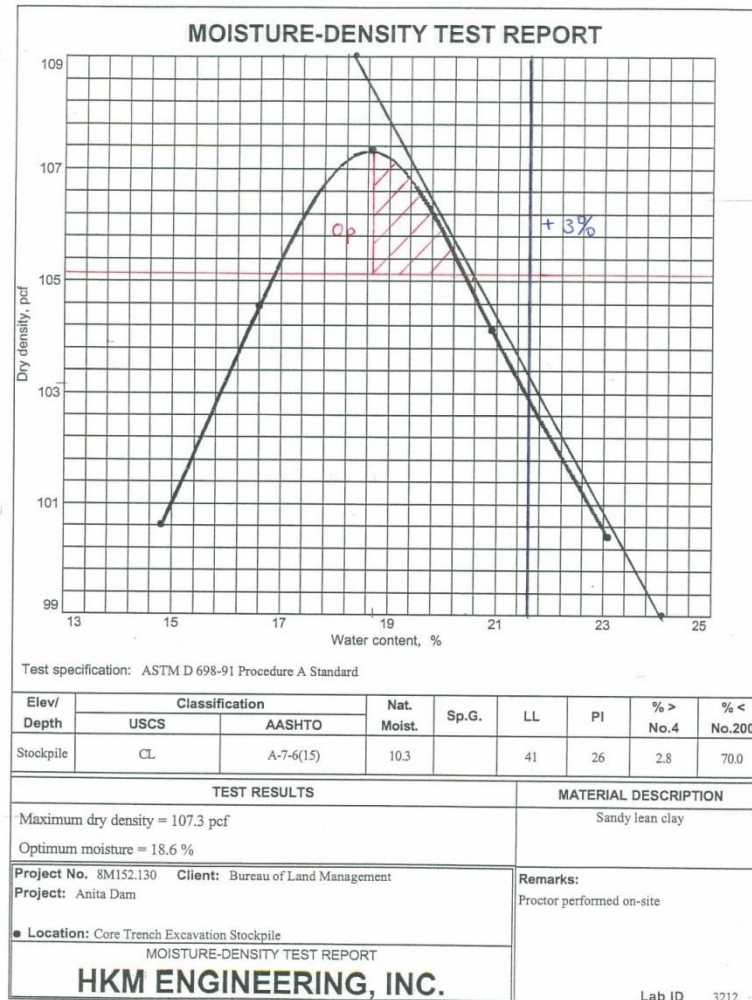




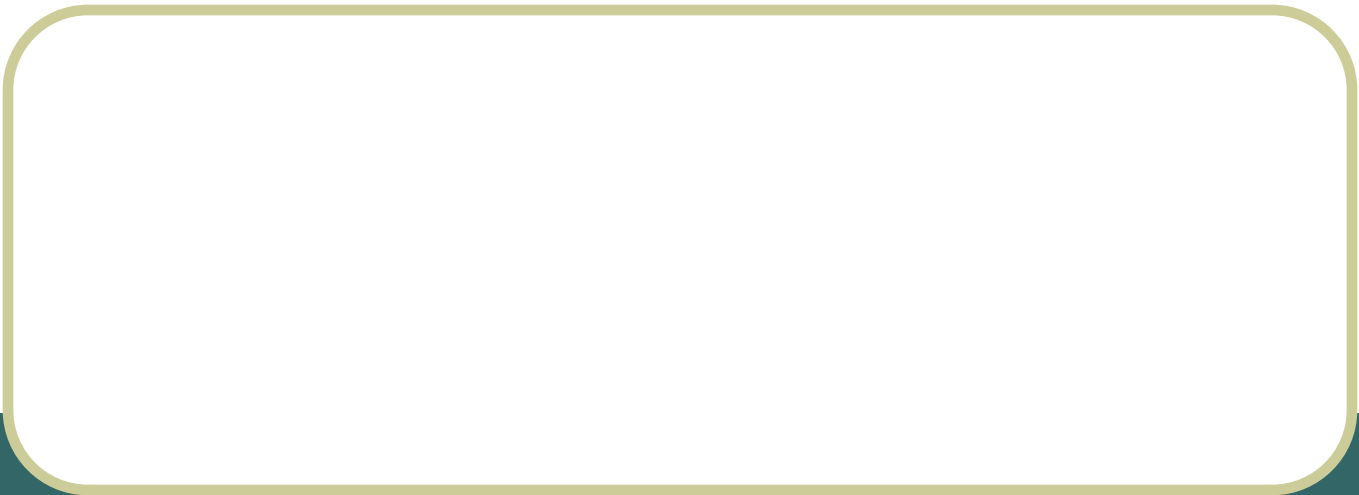








Areas To Review



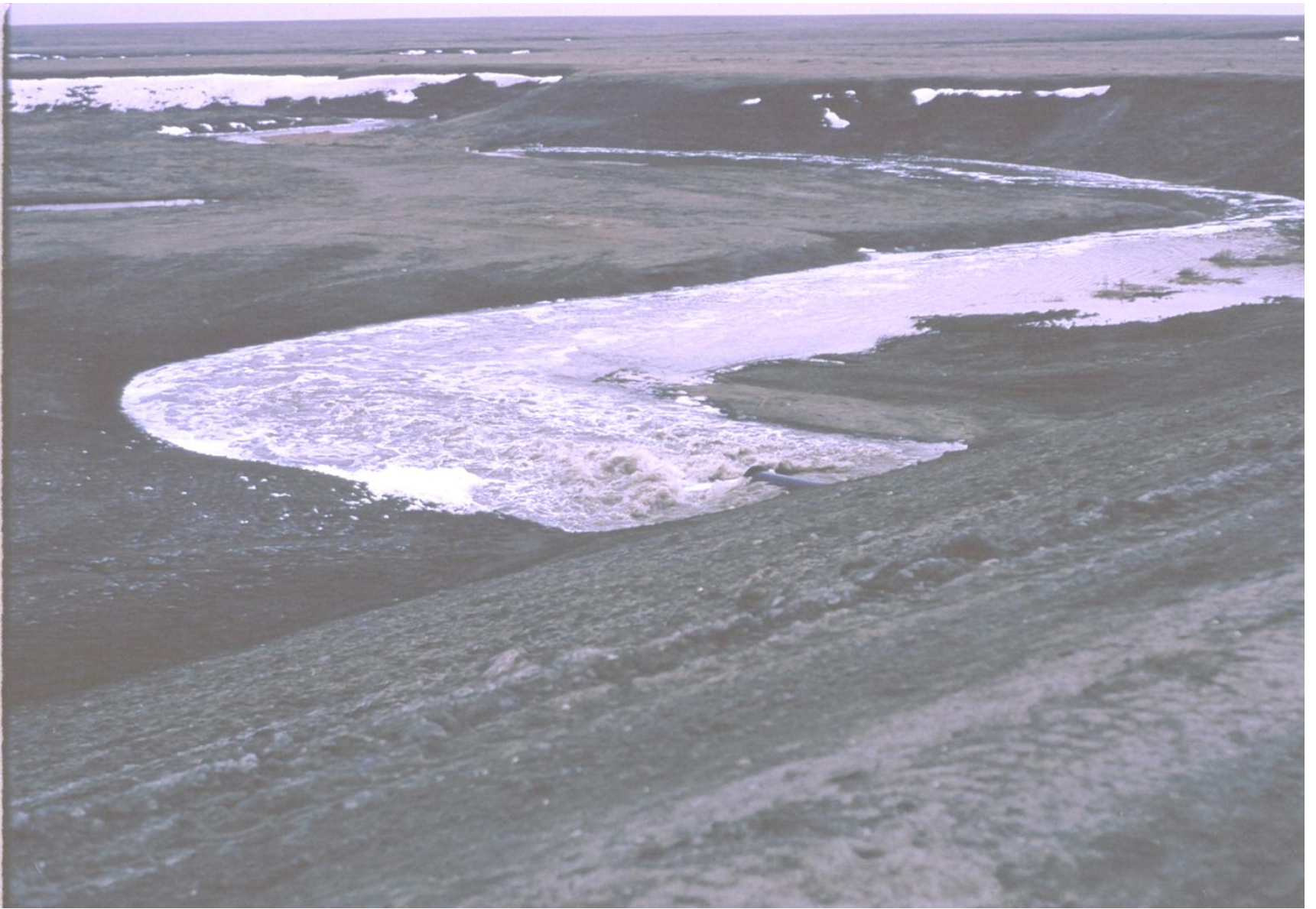












The End

Field Trip

Equipment and Materials
Needed

SAFETY

JOB HAZARDS

- Cactus
- Falling in rodent holes, washouts, pipe inlets, so on
- Driving into washouts
- Insect bites
- Weather exposure hot or cold
- Twisted ankles, knees, backs
- Stay aware of hazards for your partners and yourself. When you see a hazard identify it to others.
- Wear appropriate clothing including foot wear.
- Be cautious when driving into the site on unimproved roads.

DAM SAFETY INSPECITON REPORT

Name of Dam	Alameda
Administrative State	New Mexico
Geographic State	New Mexico
County	Dana Ana
Field Office	Las Cruces
Section	T28S R02E Sec.1
Aliquot Part	NE
Meridian	
BLM ID No	
Current Hazard Class	Significant
Population at Risk	TBA
Size of Dam	
Type of Dam	Earth

DAM SAFETY INSPECTION REPORT

River/Stream Crossed	Unnamed Tributary to Rio Grande
Seismic PGA	
Date Dam Constructed	1930's
Date Dam Modified	
Plan/Section Dwg No	
Date of Last Inspection	10/08/2008
Safety issues/warnings for inspectors	Mesquite, Cactus
Driving Directions to Dam	East of Las Cruces City Limits. Draining into Las Cruces Main Dam.

Equipment

- Map to the site
- Last Inspection
- Drawings of Embankment
- Self leveling level or laser level
- Survey rod or laser reflector
- Measuring tape 300 ft. and 25 ft.
- Stop watch
- Flashlight
- Appropriate Clothing
- Survey note book and inspection forms

Equipment

- Bucket
- GPS Unit
- Camera (Batteries, Chips)
- Hand Level
- Clinometer
- Shovel

FIELD TEAMS

- Team A -E
 - Advisor Mike Montgomery (task 1 &2)
 - Advisor JJ Gallegos (task 3)
 - Advisor Dana Cork (task 4)
- 1. Measure Elevations with level (2 groups)
- 2. Layout Stations with 300 ft tape
- 3. Measure partial high water area with GPS, Lat & Long.
- 4. Make visual inspection of dam and photograph deficiencies

Teams

- Team A

- Jim Honn
- Norm Rockwell
- Cindy Dreps
- Eddie Sanchez
- Gary Fiske

Team B

- Walt Hislop
- Dan Carter
- Carrie Wontorcik
- Eric Antrin

Team C

- Mike Hardy
- Ryan Bates
- Ken Donley
- Anthony Sowell
- Elaine Lopez

Team D

- Miriam Liberatore
- Rosemarie Spano
- Roger Dalrymple
- Celina Martinez

Team E

- Dan Stone
- Wendy Warren
- Jessica Bush
- Shelley Cooper